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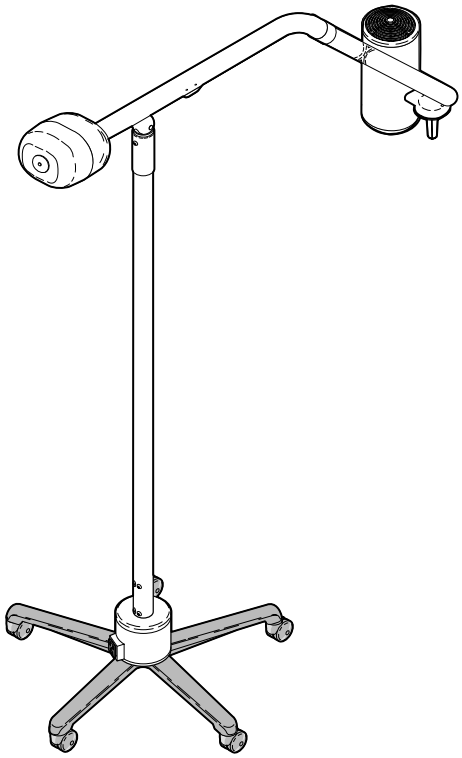
Installation and Operation Manual

354 Mobile Lighting System



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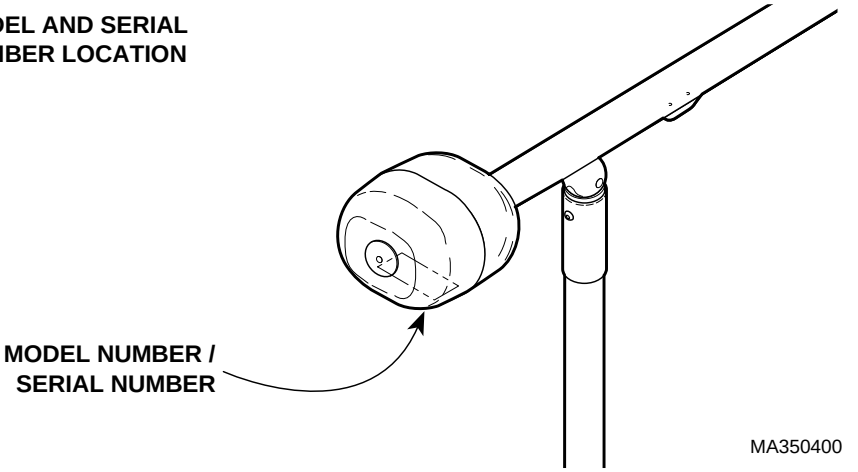
Owner's Product Identification

(information that you will need to provide for servicing - key information is highlighted)

Date of Purchase	***Serial Number***
Name of Owner / Facility / Department	***Model Number***
Name of Authorized Dealer	Telephone # of Authorized Dealer
Address of Authorized Dealer	

MODEL AND SERIAL NUMBER LOCATION



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IMPORTANT INFORMATION

Scope and Purpose of This Manual

This manual covers complete instructions for the installation, operation, and normal care of the 354(-022 &-023) Mobile Light System. It is intended that this manual be used by any medical personnel responsible for operating the mobile light system during a medical procedure or performing operator level maintenance.

Intended Use of Product

This product is intended for use in all medical environments where illumination is required for external examinations and procedures and where mobility of the product is desired.

Safety Instructions

The primary concern of Midmark is that this equipment is operated and maintained with the safety of the patient and staff in mind. To assure safer and more reliable operation:

- Read and understand this manual before attempting to install or operate the mobile light system.
- Assure that appropriate personnel are informed on the contents of this manual; this is the responsibility of the purchaser.
- Assure that this manual is located near the light.

Explanation of Safety Symbols and Notes

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The DANGER symbol is limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

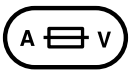
EQUIPMENT ALERT
Indicates an imminently or potentially hazardous situation which, if not avoided, will or may result in serious, moderate, or minor equipment damage.

NOTE
Amplifies an operating procedure, practice, or condition.

Indicates that the unit is rated: Type B, Applied Part.

Indicates that the operator's manual should be consulted for important information.

Indicates the presence of a dangerous voltage / shock hazard.



Indicates a fuse rating specification

Indicates a protective earth ground.

Indicates that the product is fragile; do not handle roughly.

Indicates the proper shipping orientation for the product.

Indicates that the product must be kept dry.

Indicates a hot surface.

Transportation and Storage Conditions

- Ambient Temperature Range: ..... -30°C to +60°C (-22°F to 140°F)
- Relative Humidity ..... 10% to 90% (non-condensing)
- Atmospheric Pressure ..... 500hPa to 1060 hPa (0.5 bar to 1.06 bars)
- This product contains glass, so it should be transported and stored with care to limit vibrations and shocks.

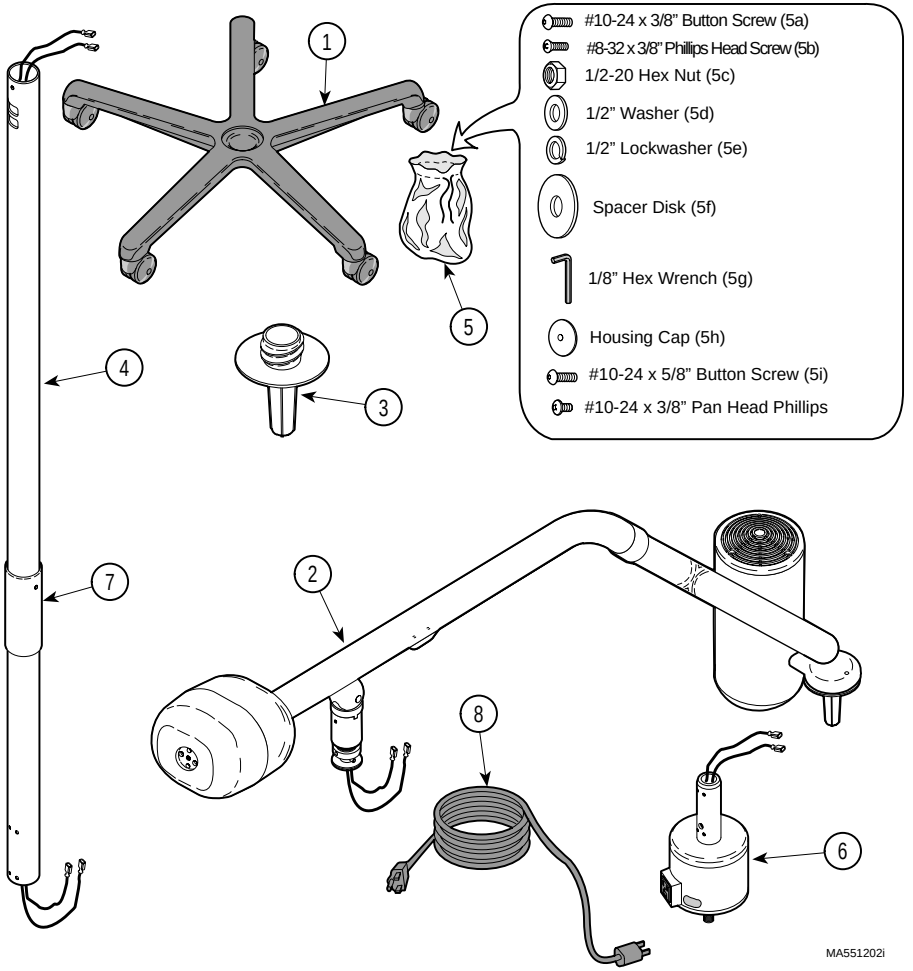
INSTALLATION

Unpacking

EQUIPMENT ALERT
To avoid damaging the light components, do not use a knife or other sharp object to open the light's packaging.

Carefully remove the packaging from the light components. Then, inspect the light components for any shipping damage. Report any damage to the shipping

company and fill out a concealed damage report.



1. Cut banding and remove box lid from box.
2. Remove one base assembly (1) and inspect for damage. Check each individual caster for damage.
3. Remove one counterbalance assembly (2) and inspect for damage.
4. Remove one sterilizable handle (3) and inspect for damage.
5. Remove vertical tube (4) and inspect for damage.
6. Remove one cotton bag (5) and inventory contents; the following items should be included:

5a. Six #10-24 x 3/8” Button Head Screw
5b. One #8-32 x 3/8” Phillips Head Screw **(Used on Model Serial # KR, MC *and on* MV1000 *thru* MV1059)**
5c. One 1/2”-20 Hex Nut
5d. One 1/2” Flat Washer
5e. One 1/2” Lockwasher
5f. One Spacer Disk
5g. One 1/8” Hex Wrench
5h. One Housing Cap
5i. One #10-24 x 5/8” Button Head Screw
5j. One #10-24 x 3/8” Pan Head Screw **(Used on Model Serial # MV1059 *thru* Present)**

[Fastener Installation Kit number (002-0696-00) includes all components listed above.]

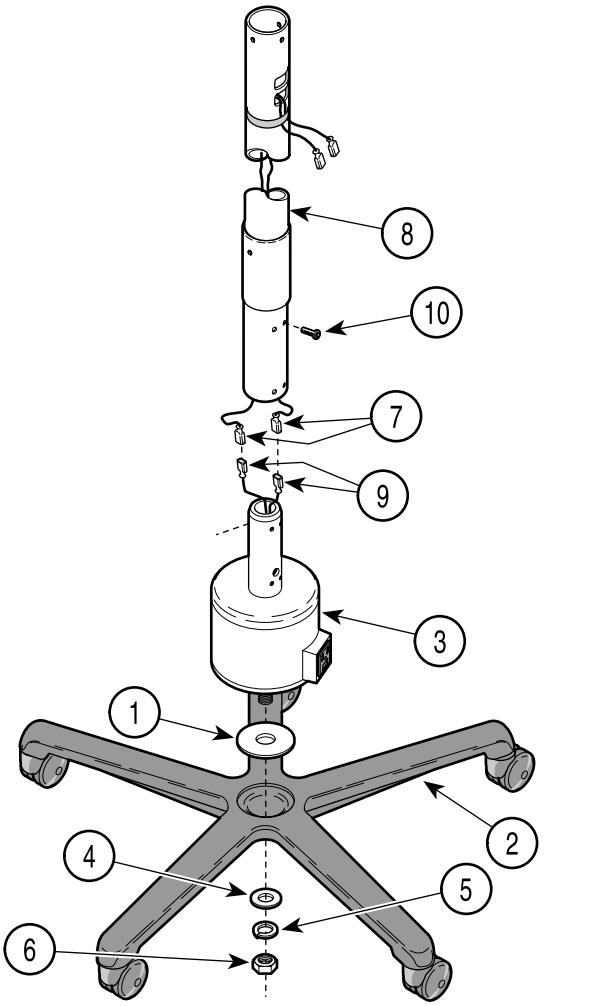
7. Remove one transformer housing assembly (6) and inspect for damage.
8. Remove one AC power cord (8) and inspect for damage.

Necessary Tools

- 3/4 in. Socket and Ratchet Driver
- Phillips Screwdriver (medium point)

Vertical Tube Installation

1. Install spacer disk (1) on center hole of base assembly (2).
2. Using 3/4 in. socket and ratchet, install transformer housing assembly (3) on base assembly (2) and secure with washer (4), lock-washer (5), and nut (6). Tighten nut (6) to 35 - 45 ft-lbs (47.5 - 61.0 N•m).
3. Remove tape securing wires (7) to vertical tube (8); then connect brown wire (7) to brown wire (9) and blue wire (7) to blue wire (9).
4. Using a 1/8 in. hex wrench (supplied), install vertical tube (8) on mounting tube of transformer housing assembly (3) and secure with four #10-24 x 3/8" screws (10).

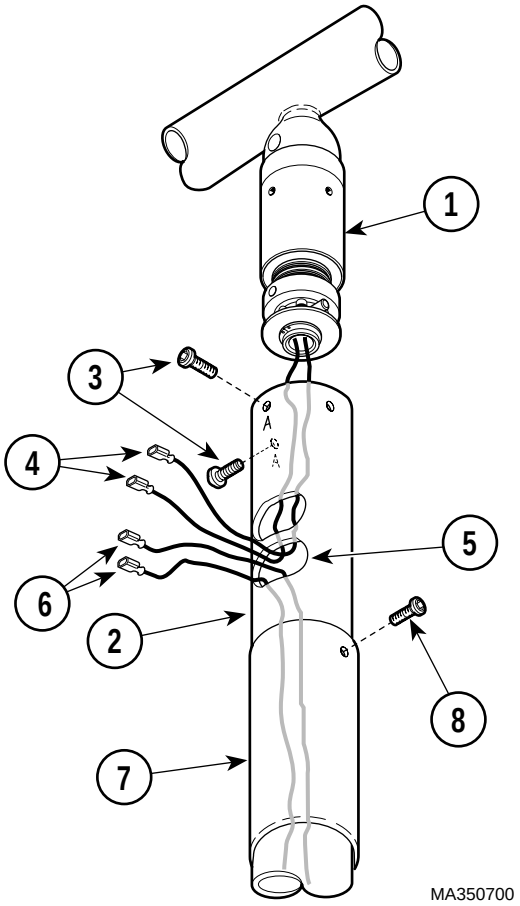


Counterbalance Assembly Installation

EQUIPMENT ALERT

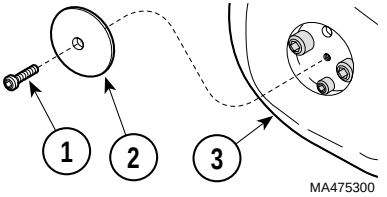
Make sure all three screw holes on the vertical tube (2) are aligned with the three screw holes on the ball pivot housing of the counterbalance assembly before installing any screws. Failure to do so could result in damage to screw threads.

1. Align three screw holes; then insert ball pivot housing of counterbalance assembly (1) into vertical tube (2) and secure with two #10-24x3/8" black oxide button head screws (3), making sure to install the two screws (3) into the screw holes marked with an "A". Tighten screws with 1/8 in. hex wrench (supplied).
2. Pull two wires (4) from counterbalance assembly (1) through the bottom access window (5).
3. Connect the brown wire (4) to brown wire (6) and blue wire (4) to blue wire (6). Push wires (4 and 6) inside the bottom access window (5).
4. Slide ball pivot sleeve (7) up into position and secure with one # 10-24 x 3/8" (New Units Only) pan head screw (8) (Refer to Page 5).



Housing Cap Installation

1. Install housing cap (2) on ballast (3) and secure with screw (1).



Electrical Requirements

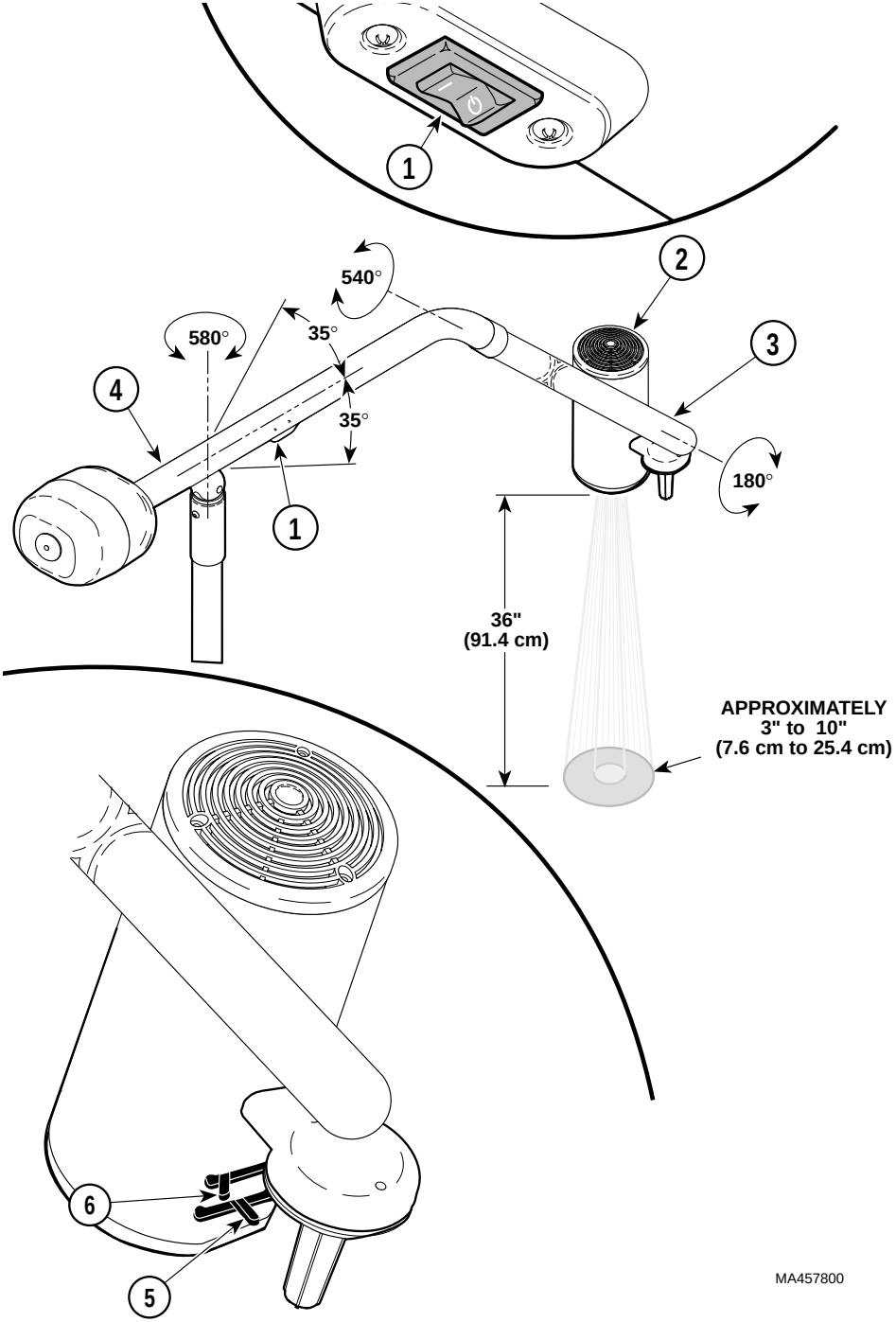
WARNING
Use 120 VAC, 60 HZ alternating current only. Failure to do so could result in electrical shock to personnel and will result in damage to mobile light system.

NOTE
Grounding reliability can only be achieved if this equipment is connected to an equivalent receptacle marked Hospital Grade (NEMA 5-15R, HOSPITAL GRADE).

The electrical rating for the mobile light system is 120 VAC, 60 HZ, 1.5 amps. The three-pronged grounding plug on the power cord must be plugged into a matching three-pronged, grounded, correctly polarized 120 VAC receptacle.

Operational Test

1. Turn the ON / STANDBY switch (1) to ON “I”.
2. Observe. The lighthead (2) should illuminate and the fan in the back of the lighthead should be operating.
3. Position the lighthead (2) 36 in. (91.4 cm) from a table and aim the light beam at the table.
4. Observe. There should be a circular pattern of bright light on the table surface.
5. Rotate the lighthead (2), lamp tube (3), and cross tube (4) through their range of motions as shown on the illustration. Release the lighthead at different positions.
6. Observe. The lighthead (2) should be able to be positioned easily through the entire range of its motion. When the lighthead is released in any position, no drifting should occur at any axis.


1
2
3
4
5
6
540°
580°
35°
35°
180°
36"
(91.4 cm)
APPROXIMATELY
3" to 10"
(7.6 cm to 25.4 cm)
MA457800

7. Adjust the brightness control lever (5) through its range of motion.
8. Observe. The light beam should brighten / darken as the brightness control lever (5) is adjusted.
9. Position the brightness control lever (5) to get maximum brightness and then adjust the beam size lever (6) through its range of motion.
10. Observe. The light beam pattern should change from approximately 3 in. (7.6 cm) to 10 in. (25.4 cm) as the beam size lever (6) is adjusted.
11. If any problems are discovered, refer to the troubleshooting guide for adjustment and repair tips.

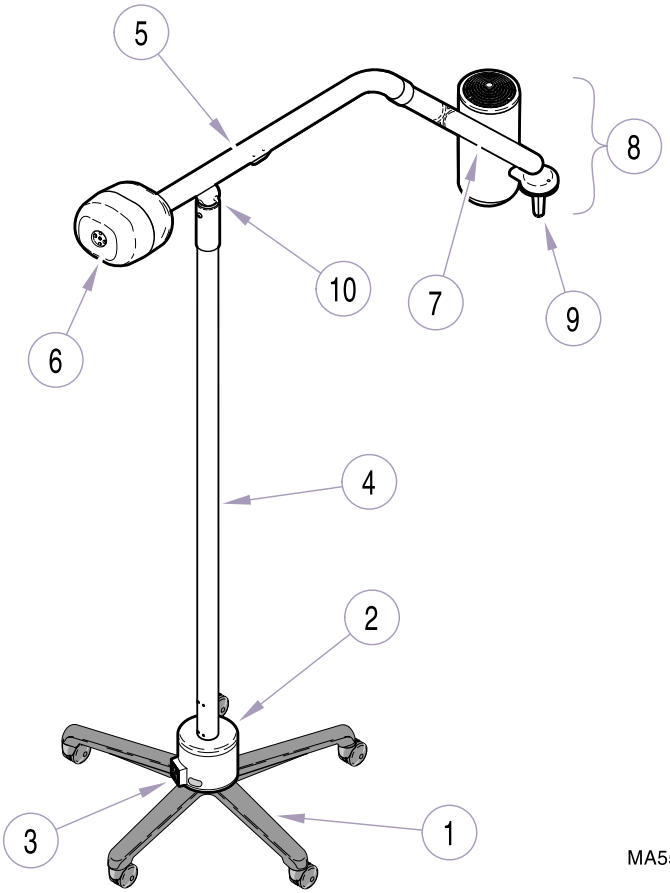
DESCRIPTION

Introduction / Features

The 354 lighthead assembly is a compact spotlight. The spotlight design provides excellent control over the diameter of the lighted area. Through the movement of two levers, the user has complete control over the light beam diameter between 3 in. (7.6 cm) to 10 in. (25.4 cm) and over the brightness of the lighted area. The peak illumination is 4,000 fc (43,000 lux) at a distance of 36 in. (91.4 cm). The plastic handle can be easily removed for sterilization or it accepts a Devon EZ Handle™ without requiring an awkward adapter. The arm assembly has been precisely designed, assembled, and balanced so that the lighthead can be positioned with minimal force and no drifting will occur. In addition, three pivot points make the positioning of the lighthead easy and flexible.

COMPONENTS OVERVIEW

The illustration below shows the location of the table's major components and the chart below provides their descriptive name.

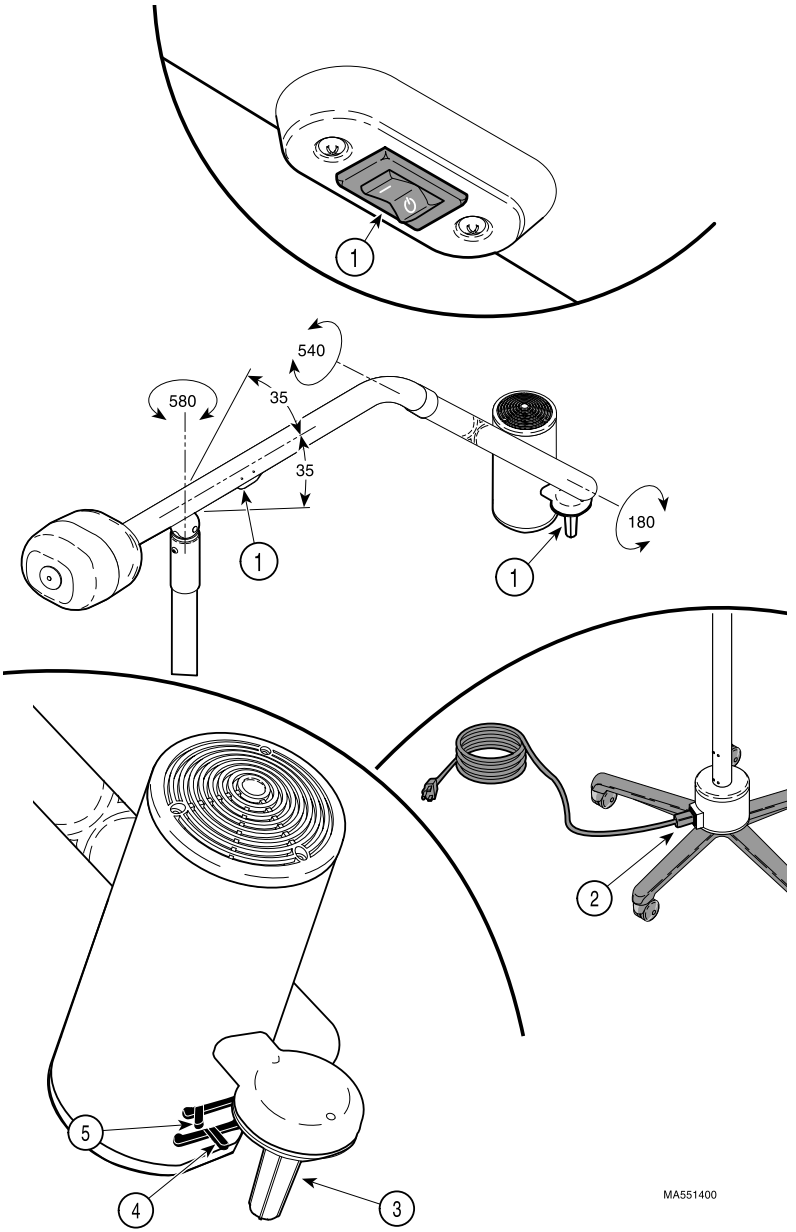


DESCRIPTION OF COMPONENTS

1. Caster Base Assembly	6. Ballast Assembly
2. Transformer Housing Assembly	7. Lamp Tube Assembly
3. AC Inlet / Fuse Drawer	8. Lighthead Assembly
4. Vertical Tube	9. Lighthead Positioning Handle
5. Cross Tube Assembly	10. Ball Pivot Joint

CONTROLS & INDICATORS

The illustration below shows the location of the table's controls and indicators and the chart below describes their function.



Ref.	Control	Function
1	*on / standby switch (on "I" / standby "⏻")*	*turns the light on or off.*
2	*fuse drawer*	*can be removed and inspected to determine if fuse has been blown, indicating a current surge or problem with light.*
3	*sterilizable handle*	*allows sterile personnel to move the lighthead without compromising the sterility of their hands.*
4	*brightness control lever*	*used to adjust the brightness of the light beam.*
5	*beam size control lever*	*used to adjust the size (diameter) of the light beam.*

OPERATION

Operating Lighthead Assembly

WARNING

Do not obstruct the airflow of the lighthead or damage to lighthead could result. If the 354 mobile light system malfunctions, immediately turn the ON / STANDBY switch to STANDBY "⏻" and unplug the power cord.

Turn the lighthead on by switching the ON / STANDBY switch to ON "I". To adjust the position of the lighthead, grasp the sterile handle (3) and rotate the arm assembly and lighthead as necessary to obtain correct light position on the patient (See previous illustration for amount of rotation for an axis). To turn off the lighthead, switch the ON / STANDBY switch to STANDBY "⏻".

Moving Mobile Light System

WARNING

The mobile light system is very stable when it is stationary and when pushed on smooth surfaces. However, when the mobile light system is being transported, it can become susceptible to tipping when it is pushed over a threshold or other similar obstruction. Failure to use care when navigating over thresholds, obstructions, or carpet could result in the mobile light system tipping and causing severe personal injury or damage to mobile light system. Grasping the vertical tube at waist height or lower during movement will help stability during movement.

To move the mobile light system to a new area or room, simply unplug the light's power cord from the outlet receptacle, coil and hold power cord, and then grasping the vertical tube at approximately waist height or lower, push the mobile light system to desired area.

OPERATOR MAINTENANCE

Operator Troubleshooting

Problem	*Possible Cause*	*Solution*
no light from lighthead	*lighthead is on standby "⏻"*	*turn on / standby switch to on "I"*
no light from lighthead; on / standby switch is on "I"	*bulb has burned out or has not been installed*	*refer to bulb installation procedure in this manual*
	fuse is blown (open)	*refer to the fuse replacement procedure in this manual*
	no power to the transformer housing assembly	*check to make sure power cord is plugged in. Then call your building maintenance electrician to check for facility power at the electrical receptacle.*
	transformer is malfunctioning	*call Midmark Technical Support: 1-800-Midmark*
no light from lighthead although the bulb and fuses were checked; lighthead flashes intermittently when lighthead or arms are moved	*circuit or wiring problem within arm assemblies, transformer housing assembly, or other part of lighting system*	*call Midmark Technical Support: 1-800-Midmark*
lamp tube or lighthead does not rotate freely or drifts when released in desired position	*brakes for the suspect axis need adjustment*	*call Midmark Technical Support: 1-800-Midmark*
cross tube rotates (at ball pivot joint) too stiffly or drifts when released in desired position	*tension needs to be adjusted or cross tube counterbalance needs to be adjusted*	*refer to tension adjustment procedure in this manual. If proper tension cannot be achieved, call Midmark Technical Support: 1-800-Midmark.*
squeak coming from movement of the ball pivot.	*residue build-up on ball pivot*	*Lower the ball pivot sleeve. Wipe the ball pivot with a clean, dry rag. Reinstall the ball pivot sleeve.*

Preventive Maintenance

The following preventive maintenance schedule should be followed. If and when problems are detected, refer to the troubleshooting guide in this manual.

FREQUENCY	ACTIVITY
monthly	Inspect casters for breaks, cracks, or wear. Replace casters as necessary.
semiannually	Inspect rotation of lighthead. Make sure the lighthead rotates freely, without noise, and has 180° of rotation at lamp tube connection. Make sure the lighthead stays positioned at any point (without drifting) with respect to the lamp tube. See illustration in the Controls & Indicators section.
semiannually	Inspect the rotation of the lamp tube and cross tube. Make sure the arm assembly rotates freely and without noise. Make sure the arm assembly doesn't drift at any point in its range of motion. The lamp tube should have 540° of rotation at cross tube connection. The cross tube should have 580° of rotation at vertical tube connection and should also have a vertical range of motion from -35° to +35°. See illustration in the Controls & Indicators section.
semiannually	Turn light "on". Rotate lighthead, lamp tube, and cross tube while observing lighthead. Lighthead should not intermittently flicker or stop illuminating while joints are being rotated.
semiannually	Check for excessive joint rotation (more than 540° of rotation at lamp tube connection or 580° of rotation at cross tube connection). If there is excessive rotation, the physical stops for an axis may be broken.
semiannually	Inspect inside of lighthead for indications of broken material or other signs of damage. If damage to any part of lighthead is evident, do not continue to use lighthead.
semiannually	Turn light on. Verify that fan is operating. If fan is not operating, do not continue to use lighthead. Operating lighthead without a fan in operation may cause lenses to melt.
Semiannually	Move the cross tube up and down while listening for squeaks coming from the ball pivot area. If squeaks are heard, lower the ball pivot sleeve and wipe the ball pivot sleeve with a clean, dry rag (wipe even if ball pivot appears clean). Repeat the test. If no squeaks are heard, reinstall the ball pivot sleeve.

Bulb Replacement Procedure

CAUTION

Turn the ON / STANDBY switch to STANDBY "⏻" before replacing bulb. Otherwise, electrical shock or hand burns could result.

Move the lighthead as far as possible from the exam / surgical site to prevent contaminants from falling onto the exam / surgical site. Do not try to remove the bulb until the unit is allowed to cool. Otherwise, burns to the hands and fingers could result.

NOTE

Screw (1) is a captive screw. Only loosen captive screw; do not try to remove it.

The phillips head screw (1) is different from the other two screws on the top cap. Loosen this screw only to slide out the bulb carriage assembly(2); the two other screws secure the top cap to the fan mounting plate.

1. If light is on, turn the ON / STANDBY switch to STANDBY "⏻". Move lighthead away from exam / surgical site. Lower the lighthead to gain access for bulb removal.
2. Using a phillips head screwdriver, loosen one screw (1) and then slide bulb carriage (2) out of outer housing (3).

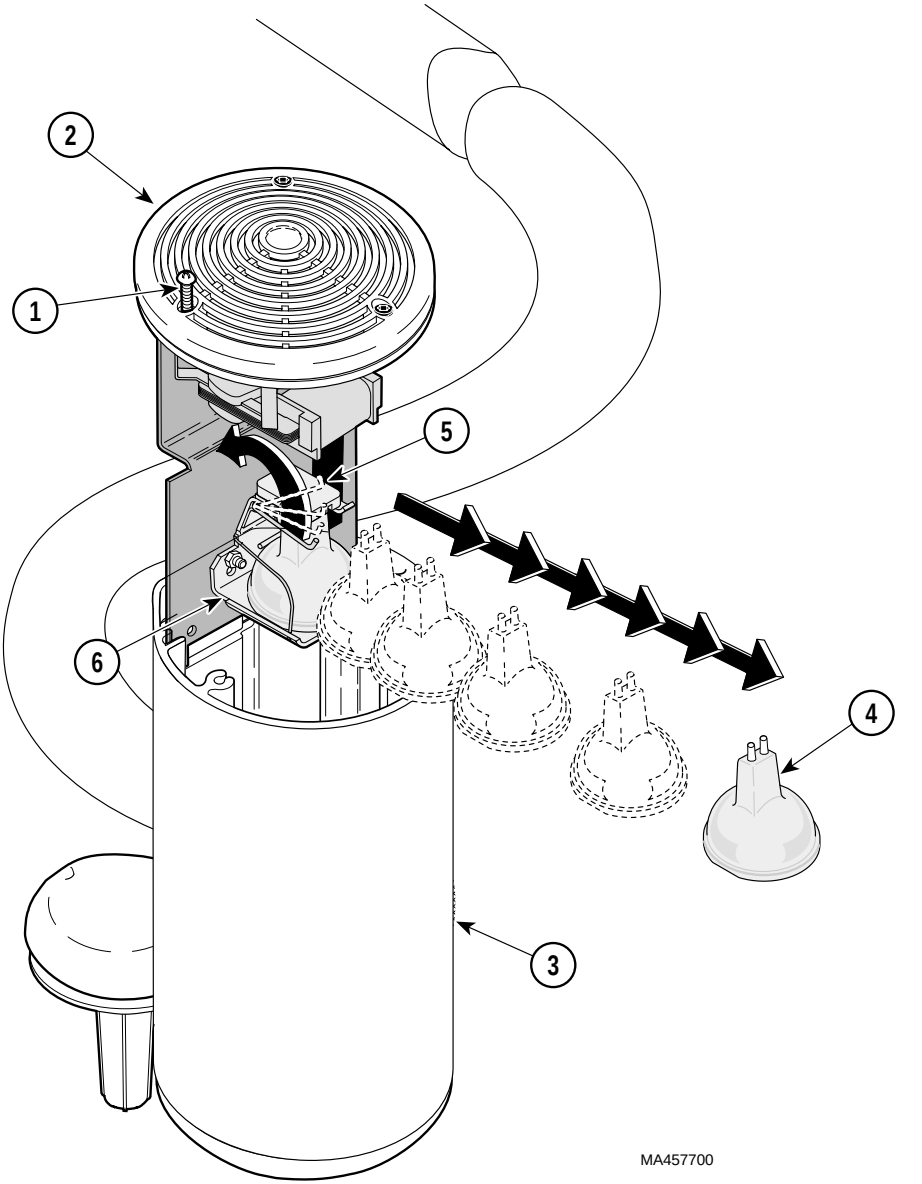
WARNING

The maximum allowable bulb wattage which can be used in this light is 150 Watts. There is a risk of fire if the 150 Watt limit is exceeded. Use Midmark Part Number: 015-1212-00.

NOTE

Halogen bulbs are sensitive to body oils. Be sure not to touch the inside surface of the reflector or glass capsule of the bulb during relamping or cleaning. Body oils create a hot spot on the bulb and may cause the bulb to burn out prematurely. If these portions of the bulb/reflector are handled, wipe with a clean, soft, lint free cloth. Wipe with alcohol and pat dry.

3. Remove the old bulb (4) by first pulling the bulb ejector lever (5) to the rear and then gently pulling upward on the bulb with the other hand.
4. Push the bulb ejector lever (5) forward.

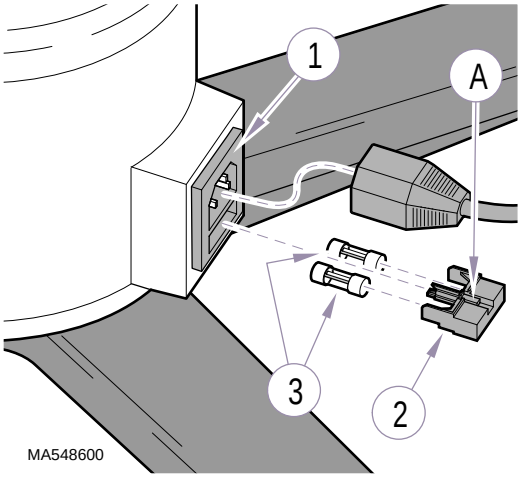


5. Grasp the new bulb (4) and insert the bulb into the bulb socket (6). Push the bulb all the way down until the base of the bulb is firmly seated against the bulb socket.

6. Slide bulb carriage assembly (2) into outer housing (3) and secure by tightening screw (1).

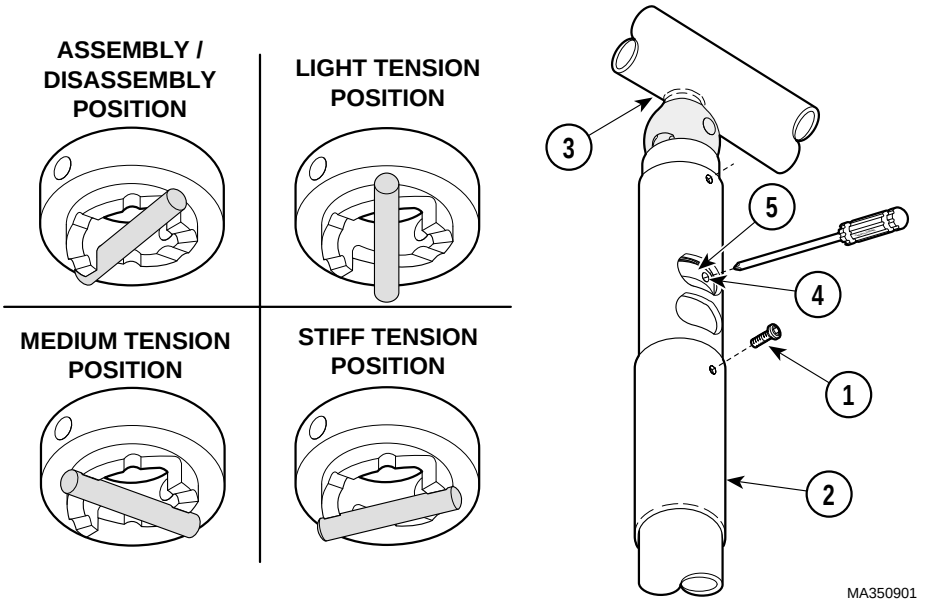
Fuse Replacement Procedure

1. Turn the ON / STANDBY switch to standby "⏻" and unplug light power cord from AC inlet (1).
2. While simultaneously pushing in on locking tab (A), pull fuse drawer (2) from AC inlet (1).
3. Pull two fuses (3) out of fuse drawer (2).
4. Inspect fuses (3) for any indication that it has been blown; i.e. burnt look, fuse cord melted through, etc. Discard fuse.



5. Obtain new fuses of the same voltage rating, amperage rating, and type. Refer to the Specifications section in this manual for the fuse specification.
6. Insert one end of the new fuses (3) into the fuse drawer (2).
7. Insert fuse drawer (2) into AC inlet (2) until it locks into place; you should hear a light clicking sound.
8. Plug light power cord into AC inlet (1), turn ON / STANDBY switch to ON "**I**", and check for light output. If fuse blows again, call Midmark Technical Service (see calling for service in this manual).

Ball Pivot Tension Adjustment Procedure

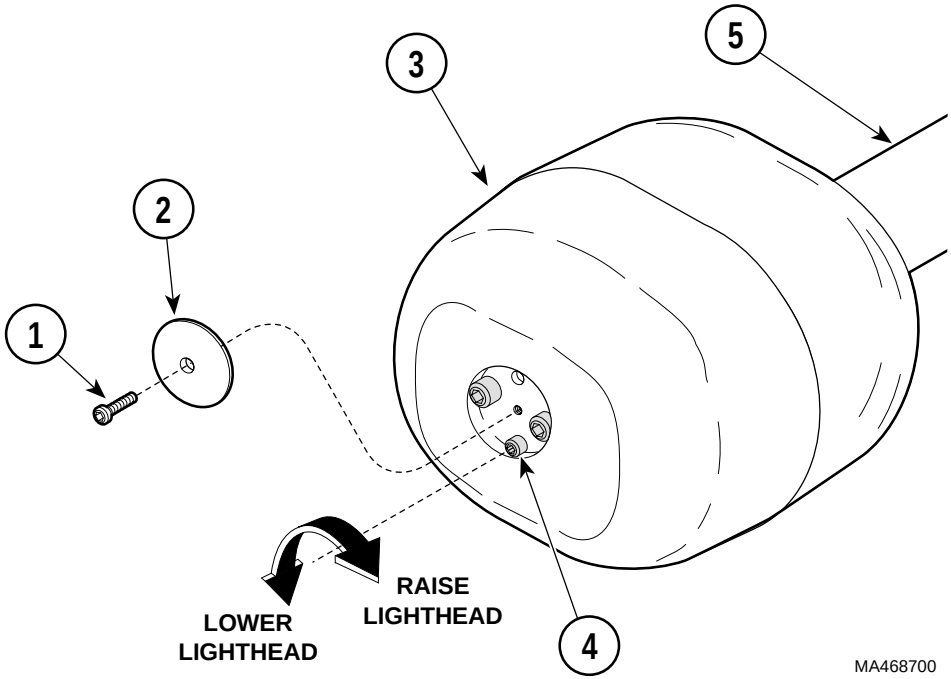


1. Remove screw (1) and slide ball pivot sleeve (2) down out of way.
2. Rotate cross tube (3) until adjustment hole (4) appears in the adjustment window opening.

NOTE
There are three settings which the ball pivot cam (5) can be set for: light tension, medium tension, or stiff tension (see above figure). These settings may be changed according to the operator's preference.

3. Insert screwdriver into adjustment hole (4). Then, using the screwdriver, rotate ball pivot cam (5) to the desired tension setting.
4. Remove the screwdriver and move the cross tube (3) about the ball pivot joint in a circular motion and up and down motion to ensure the setting is the one desired. Move the cross tube (3) to a horizontal position and release it. The cross tube should not drift in any direction. If it does, a higher tension setting is required or the cross tube counterbalance needs adjusted (see counterbalance adjustment in this manual). Repeat steps 3 and 4 until the desired tension adjustment is achieved with no drifting of the cross tube.
5. Slide ball pivot sleeve (2) up into position and secure with screw (1).

Cross Tube Counterbalance Adjustment



1. Remove screw (1, see previous illustration) and slide ball pivot sleeve (2) down out of way.
2. Rotate cross tube (3, see previous illustration) until adjustment hole (4) appears in the adjustment window opening.
3. Insert screwdriver into adjustment hole (4, see previous illustration). Then, using the screwdriver, rotate ball pivot cam (5) to the assembly / disassembly setting. Remove the screwdriver.

4. Remove screw (1, see illustration above) and housing cap (2) from ballast housing (3).

NOTE
One way to determine if cross tube is balanced properly is to raise the cross tube above the horizontal plane, release it, and observe where it stops. Then, lower the cross tube below the horizontal plane, release it, and observe where it stops. The cross tube should return to the horizontal position and remain there; if it does, the cross tube counterbalance is adjusted properly.

Turning screw (4) in clockwise direction will raise the lighthead end of the cross tube. Turning screw (4) in counterclockwise direction will lower the lighthead end of cross tube.

5. Using a 3/16" hex (Allen) wrench, adjust screw (4) until cross tube (5) balances in a horizontal position.

6. Install housing cap (2) on ballast housing (3) and secure with screw (1).

NOTE
It is recommended that you start with the light setting and then proceed to the medium or stiff setting only if necessary to prevent drifting.

7. Insert screwdriver into adjustment hole (4, see figure on page 20). Then, using the screwdriver, rotate ball pivot cam (5) to the light, medium, or stiff setting as desired by the operator(s). Remove screwdriver.

8. Slide ball pivot sleeve (2) up into position and secure with screw (1).

Cleaning and Disinfecting

EQUIPMENT ALERT

When cleaning or disinfecting the light, remove power from the light, allow optical unit to cool. Clean EXTERNAL SURFACES ONLY (arm assemblies and lighthead). Prevent fluids from leaking into interior or onto electrical contacts. DO NOT ATTEMPT to clean or disinfect interior; instead call an authorized dealer or service technician.

EQUIPMENT ALERT

Use only quaternary disinfectants to disinfect light. Staining, pitting, discoloration, or softening could occur if phenolic, iodophor, or glutaraldehyde-based disinfectant is used on plastic surfaces of the lighthead. Also, use of alcohol or aerosol spray cleaner / disinfectant containing substantial amounts of alcohol in the formula can damage the lens.

External Cleaning Procedures

For general cleaning, use a mild detergent and water solution. Wring excess solution from sponge or cloth before wiping.

According to your facility's procedure:

1. Clean lens with an antistatic acrylic cleaning solution using a soft, clean cloth. Do not use alcohol or abrasive compounds on lens.
2. Wipe external surface of arm assemblies and lighthead with a mild detergent and water solution.
3. Rinse all external surfaces with a soft cloth and clear water, wringing excess from cloth before wiping.
4. Wipe all external surfaces dry.

External Disinfecting Procedures

According to your facility's procedure:

1. Use only quaternary disinfectants to disinfect light. Staining, pitting, discoloration, or softening could occur if phenolic, iodophor, or glutaraldehyde-based disinfectant is used on plastic surfaces of the lighthead. Also, use of alcohol or aerosol spray cleaner / disinfectant containing substantial amounts of alcohol in the formula can damage the lens.
2. Wring excess solution from cloth.
3. Using soft cloth, wipe all external surfaces of arm assemblies and lighthead.

4. Do not rinse or dry external surfaces. Allow disinfectant solution to air dry.

Handle Sterilization

- Use only steam sterilization on the handle.
- Follow sterilization instructions of sterilizer manufacturer.

CALLING FOR SERVICE

If you are having a problem or have a question, refer to the inside front cover of this manual and call your dealer. Make sure that you have the information that is highlighted on the inside front cover of this manual available. If you can't resolve your question or problem with your dealer, call the following number:

1-800-Midmark (1-800-643-6275) or 937-526-3662
8:00 a.m until 5:00 p.m. (Eastern Standard Time in the U.S.)
Monday thru Friday, except for standard U.S. holidays.

SPECIFICATIONS

Model 354 Mobile Light

Beam diameter @ 36 in. : (91.4 cm)	Variable from 3 to 10 in. (7.6 to 25.4 cm)
Bulb:	21.0 VAC, 150 W halogen bulb
Color temperature:	4,200K
Focal length:	36 in. (91.4 cm)
Illumination @ 36 in. (91.4 cm):	4,000 fc / 43,000 lux
Electrical requirement:	120 VAC, 60 HZ, 1.5 amps, single phase
"A" Reach of arm assemblies:	26.0 in. (66.0 cm) maximum from centerline of vertical tube to center of lighthead.
"B" Length of counterbalance:	42 in. (106.7 cm)
"C" Width of caster base:	28 in. (71.1 cm)
"D" Minimum lighthead height:	less than 44 in. (111.8 cm)
"E" Maximum lighthead height:	greater than 71 in. (180.3 cm)
"F" Maximum overall height:	less than 85 in. (215.9 cm)
Rotation of lighthead:	180° rotation at lamp tube connection
Rotation of lamp tube:	540° rotation at cross tube connection
Rotation of cross tube:	580° rotation at vertical tube connection
Vertical range of cross tube:	-35° to +35° vertical movement
Box dimensions:	61 in. "L" x 30.5 "W" x 10.5 "H" 154.9 cm x 77.5 cm x 26.7 cm
Unboxed weight:	59 lbs (26.8 kg)
Power cord set	96 in. (2.44 m) long with hospital grade grounding type plug

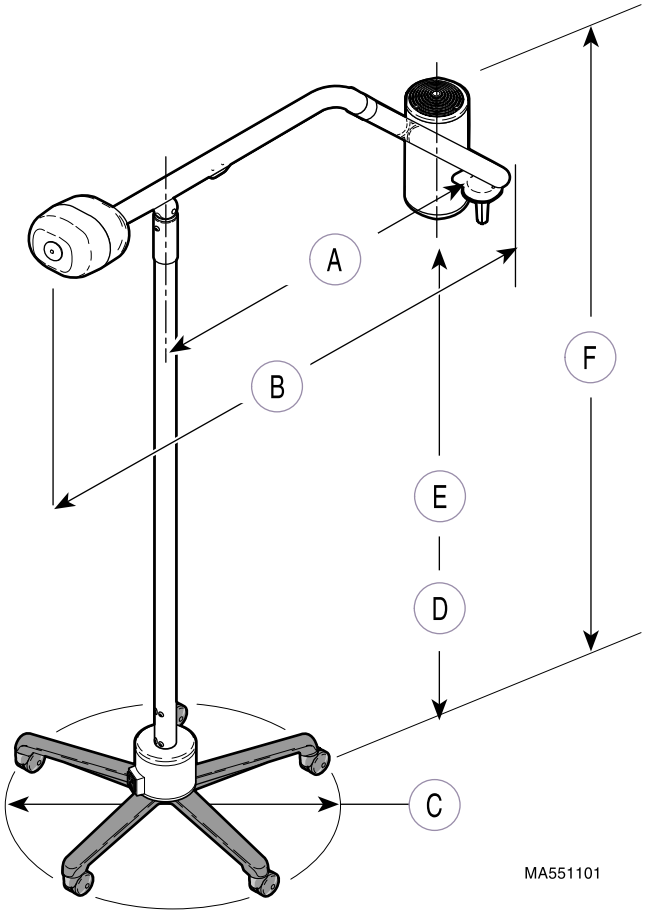
Certifications: ..... Classified by Underwriters Laboratories Inc. with respect to electric shock, fire, and mechanical hazards only in accordance with UL2601-1 and CAN/CSA C22.2, No.601.1.

ISO-9001 Certified

Classifications: ..... Class 1, Type B applied part, Ordinary Equipment, Continuous Operation

Fuse Rating: ..... 1.6 amp, 250 VAC, 5mm x 20mm, Type T, low breaking capacity, IEC 127-2/3

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide.



LIMITED WARRANTY

SCOPE OF WARRANTY
Midmark Corporation ("Midmark") warrants to the original purchaser its new Alternate Care products and components (except for components not warranted under "Exclusions") manufactured by Midmark to be free from defects in material and workmanship under normal use and service. Midmark's obligation under this warranty is limited to the repair or replacement, at Midmark's option, of the parts or the products the defects of which are reported to Midmark within the applicable warranty period and which, upon examination by Midmark, prove to be defective.

APPLICABLE WARRANTY PERIOD
The applicable warranty period, measured from the date of delivery to the original user, shall be one (1) year for all warranted products and components.

EXCLUSIONS
This warranty does not cover and Midmark shall not be liable for the following: (1) repairs and replacements because of misuse, abuse, negligence, alteration, accident, freight damage, or tampering; (2) products which are not installed, used, and properly cleaned as required in the Midmark "Installation" and or "Installation / Operation Manual for this applicable product. (3) products considered to be of a consumable nature; (4) accessories or parts not manufactured by Midmark; (5) charges by anyone for adjustments, repairs, replacement parts, installation, or other work performed upon or in connection with such products which is not expressly authorized in writing in advance by Midmark.

EXCLUSIVE REMEDY
Midmark's only obligation under this warranty is the repair or replacement of defective parts. Midmark shall not be liable for any direct, special, indirect, incidental, exemplary, or consequential damages or delay, including, but not limited to, damages for loss of profits or loss of use.

NO AUTHORIZATION
No person or firm is authorized to create for Midmark any other obligation or liability in connection with the products.

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NOTES:

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Midmark Corporation, Versailles, Ohio 45380 U.S.A.
937-526-3662 FAX: 937-526-5542

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